

In the Claims

1-50. (Cancelled)

51. (Withdrawn) A method comprising:

providing a curable adhesive composition including a conductive epoxy;
providing a thin profile battery and a substrate to which the thin profile battery is to be conductively coupled;
providing a dipole antenna on the substrate;
interposing the curable adhesive composition between the thin profile battery and the substrate;
mounting an RFID integrated circuit to the substrate;
coupling the RFID integrated circuit to the antenna and to the battery; and
curing the adhesive into an electrically conductive bond electrically interconnecting the battery and the substrate.

52. (Withdrawn, Currently Amended) The method of 51 wherein the ~~epoxy-terminated silane~~ curable adhesive composition comprises a glycidoxy methoxy silane.

53. (Withdrawn, Currently Amended) The method of 51 wherein the ~~epoxy-terminated silane~~ curable adhesive composition comprises a glycidoxypolytrimethoxysilane.

54. (Withdrawn) The method of 51 wherein the thin profile battery comprises an outer nickel clad stainless steel surface over which the curable adhesive composition is received.

55. (Withdrawn) The method of 51 wherein the thin profile battery is a button type battery having a terminal housing member comprising an outer nickel clad stainless steel surface over which the curable adhesive composition is received.

56. (Withdrawn) The method of 51 wherein the thin profile battery is a button type battery having a terminal housing member comprising an outer nickel clad stainless steel surface over

which the curable adhesive composition is received, and wherein the substrate comprises conductive printed thick film ink over which the curable adhesive composition is received.

57. (Withdrawn) The method of 51 wherein the thin profile battery is a button type battery having a terminal housing member comprising an outer nickel clad stainless steel surface over which the curable adhesive composition is received, and the substrate comprises conductive printed thick film ink over which the curable adhesive composition is received.

58. (Withdrawn) A method of conductively interconnecting electronic components:
providing a flexible substrate;
disposing a flexible conductive path on the flexible substrate;
supporting an RFID integrated circuit from the substrate, coupled to the flexible conductive path;
providing a curable adhesive composition including an epoxy configured to be conductive at least after being cured;
providing a thin profile battery to be conductively connected with the flexible conductive path;
interposing the curable adhesive composition between the battery and the flexible conductive path; and
curing the adhesive into an electrically conductive bond electrically coupling the battery to the flexible conductive path.

59. (Withdrawn) The method of 58 wherein the battery comprises a nickel containing metal surface over which the curable adhesive composition is received.

60. (Withdrawn) The method of 58 and comprising printing the flexible conductive path onto the substrate.

61. (Withdrawn, Currently Amended) A method of conductively interconnecting electronic components:
printing at least one conductive path on a flexible substrate;

electrically coupling a radio frequency communications device to the conductive path;
applying a curable adhesive, including an epoxy configured to be conductive at least after being cured, to at least one of the printed conductive path and a terminal of a battery [[and]];
engaging the terminal of the battery with the conductive path; and
curing the adhesive into an electrically conductive bond electrically coupling the terminal of the battery to the printed conductive path.

62. (Withdrawn) The method of 61 wherein the battery is a thin profile battery.

63. (Withdrawn) The method of 61 wherein the adhesive both supports the battery from the substrate and couples the terminal of the battery to the conductive path.

64. (Withdrawn) The method of 63 wherein printing a conductive path comprises using printed thick film.

65. (Currently Amended) A radio frequency communication device comprising:
a flexible substrate;
a dipole antenna;
a flexible conductive path disposed on the substrate, the conductive path including a first portion and a second portion;
an RFID integrated circuit mounted to the substrate and electrically coupled to the first portion of the ~~substrate~~ conductive path and to the antenna using a conductive adhesive, the integrated circuit including a processor, a modulated backscatter transmitter coupled to the processor, a receiver coupled to the processor, and a wake-up circuit coupled to the receiver and configured to selectively activate the receiver; and
a thin profile battery conductively bonded with a second portion of the ~~substrate~~ conductive path by a conductive adhesive.

66. (Previously Presented) The device of 65 wherein the wake-up circuit is coupled to the processor and is configured to determine when a valid command is being received and to supply electrical power from the battery to the processor in response thereto.

67. (Previously Presented) The device of 65 wherein the integrated circuit includes a frequency lock loop configured to supply clock signals to the receiver and transmitter, the frequency lock loop including a current source having a thermal voltage generator, and a current controlled oscillator having a plurality of selectively engageable current mirrors multiplying up the current of the current source.
68. (Currently Amended) A radio frequency communication device comprising:
a flexible substrate;
a dipole antenna disposed on the substrate;
flexible conductive paths disposed on the substrate, the conductive paths including a first portion and a second portion;
a RFID integrated circuit mounted to the substrate and electrically coupled to the first portion of the ~~substrate~~ conductive paths and to the antenna; and
a thin profile battery conductively bonded with a second portion of the ~~substrate~~ conductive paths by a conductive adhesive.
69. (Previously Presented) The device of 68 wherein the integrated circuit includes a processor, a transmitter coupled to the processor, and a receiver coupled to the processor.
70. (Previously Presented) The device of 68 wherein the integrated circuit includes a processor, a modulated backscatter transmitter coupled to the processor, and a receiver coupled to the processor.
71. (Previously Presented) The device of 70 wherein the integrated circuit includes a wake-up circuit configured to selectively activate the receiver.
72. (Previously Presented) The device of 70 wherein the integrated circuit includes a wake-up circuit configured to periodically activate the receiver, the wake-up circuit being coupled to the receiver and the processor and periodically waking the receiver, the wake-up circuit being configured to determine when a valid command is being received and to supply electrical power from the battery to the processor in response thereto.

73. (Previously Presented) The device of 70 wherein the integrated circuit includes a frequency lock loop configured to supply clock signals to the receiver and transmitter, the frequency lock loop including a current source having a thermal voltage generator, and a current controlled oscillator having a plurality of selectively engageable current mirrors multiplying up the current of the current source.

74. (Previously Presented) The device of 68 wherein the integrated circuit includes a microprocessor, a receiver configured to receive radio frequency commands from an interrogation device and having an output coupled to the microprocessor, a transmitter configured to transmit a signal identifying the device to the interrogator in response to a command from the microprocessor, and a wake-up timer circuit coupled to the receiver and configured to determine if a signal received by the receiver is a radio frequency command from the interrogation device, the integrated circuit at times switching between a sleep mode and a receiver-on mode, more power being consumed in the receiver-on mode than in the sleep mode, the integrated circuit switching from the receiver-on mode to a microprocessor-on mode in response to receiving a signal indicating that a communication received by the receiver is a radio frequency command from the interrogation device.

75. (Previously Presented) The device of 68 wherein the antenna is a dipole antenna having first and second portions which define, in operation, first and second poles of the dipole antenna, respectively, and wherein the integrated circuit includes a transmitter and a receiver, the transmitter being switchable between a backscatter mode, wherein a carrier for the transmitter is derived from a carrier received from an interrogator and the integrated circuit alternately reflects or does not reflect the carrier from the interrogator by shorting or isolating the first and second portions of the dipole antenna to transmit data to the interrogator, and an active mode, wherein a carrier for the transmitter is generated by the integrated circuit itself, the transmitter being configured to switch between the backscatter and active modes in response to a radio frequency command received by the receiver.

76. (Previously Presented) The device of 68 wherein the antenna is a dipole antenna having first and second portions which define, in operation, first and second poles of the dipole antenna, respectively, and wherein the integrated circuit includes a transmitter and a receiver, the transmitter selectively transmitting a signal using a modulation scheme, the transmitter being capable of transmitting using modulated backscatter modulation and also capable of transmitting using any of the following active modes: Frequency Shift Keying (FSK), Binary Phase Shift Keying (BPSK), Direct Sequence Spread Spectrum, On-Off Keying (OOK), Amplitude Modulation (AM).
77. (Previously Presented) The device of 68 wherein the antenna is printed onto the substrate.
78. (New) A radio frequency identification (RFID) device, comprising:
a substrate;
a battery;
an RFID integrated circuit mounted on the substrate;
a cured adhesive including an epoxy configured to be conductive at least after being cured, the cured adhesive applied between the battery and the flexible conductive path; and
wherein the adhesive is cured into an electrically conductive bond electrically coupling the battery to the substrate to connect the RFID integrated circuit to the battery.
79. (New) The radio frequency identification (RFID) device of claim 78, further comprising:
a dipole antenna provided on the substrate and coupled to the antenna;
wherein the battery is a thin profile battery;
the cured adhesive is interposed between the thin profile battery and the substrate to couple the RFID integrated circuit to the battery.
80. (New) The radio frequency identification (RFID) device of claim 78, wherein the substrate is flexible; the substrate includes a flexible conductive path; the RFID integrated circuit is coupled to the flexible conductive path; the cured adhesive is interposed between the battery and the flexible conductive path to electrically couple the battery to the flexible conductive path.

81. (New) The radio frequency identification (RFID) device of claim 78, wherein the substrate is flexible; the battery has a terminal; the substrate includes a conductive path printed on the flexible substrate; the RFID integrated circuit is electrically coupled to the conductive path; the cured adhesive is applied to at least one of the printed conductive path and the terminal of the battery to engage the terminal of the battery with the conductive path; and the adhesive is cured to electrically couple the terminal of the battery to the printed conductive path.